

## Company Info

### LSB & LSP Information

Large Scale Biology Corporation

Large Scale Proteomics Corporation

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#### Large Scale Biology Corporation

***Large Scale Biology Corporation is the leader in the integrated discovery, production and application of proteins - the functional units of all biological processes.***

Large Scale Biology Corporation (LSB, Vacaville, CA) and its subsidiary Large Scale Proteomics Corp. (LSP, Germantown, MD) are a biotechnology enterprise with the mission of accelerating the speed and productivity of the life sciences industry product discovery and development programs. Unique among biotechnology companies is LSB's integration of technologies to discover, analyze, manufacture and find new applications for proteins - the functional units of all biological processes.

Genomics companies have focused on deciphering genetic information, providing an initial but only partial understanding of biological processes. LSB's proprietary protein technologies can enable the transformation of genomic information into products such as drug targets, therapeutics, diagnostics for drug efficacy and toxicity, and traits for agricultural crops. Large Scale Biology has gone beyond the "genomics" realm in its business model and developed ways to integrate the discovery of gene function with quantitative protein analysis and protein manufacturing. This integration of technology platforms favorably positions LSB as a leading provider of valuable content to industry leaders in the fields of diagnostics, therapeutics, vaccines and agribusiness.

LSB was founded in 1987 with the goal of commercializing its proprietary GENEWARE viral vector system - a novel technology for gene expression. Using safe RNA viruses to transiently express genes in non-recombinant plants, LSB has positioned itself in the industry to provide cost-effective manufacturing and purification of diverse protein and peptide products. The same technology can be applied to the expression of libraries of foreign genes in an automated, high-throughput format to discover the function of genes with unparalleled efficiency. The GENEWARE system and associated proprietary technologies form the basis for LSB's functional genomics, biomanufacturing and a variety of proprietary products under development.

From its foundation, LSB understood the need to integrate functional genomic and protein manufacturing expertise with quantitative protein analysis and informatics to become a world-leader in the protein field. In 1999, LSB acquired a privately held pharmaceutical proteomics company originally founded in 1985. Large Scale Proteomics Corporation (a wholly

owned subsidiary of Large Scale Biology Corporation) is an industry leader in identifying and characterizing proteins in all types of biological samples for the discovery and development of new and more effective therapies, diagnostics, and agricultural products.

"Proteomics" is the study of the entire complement of proteins expressed in a cell, tissue, or organism. Proteomics can significantly improve drug discovery and development because most illness is associated with imbalances among, or malfunctions of, proteins. Only a small fraction of diseases can be attributed to the presence of a defective gene. Unlike classical genomics approaches that discover genes that may relate to a disease, LSP has developed a proprietary system called the ProGEx module for directly characterizing proteins associated with disease. Using this same technology, LSP can characterize the effects of candidate drugs intended to reverse a disease process, and to determine the degree to which this objective is achieved free of adverse side effects.

LSB and LSP have protected their many discoveries through an extensive portfolio of domestic and foreign patents and have developed commercial alliances and partnerships to exploit the value of their technologies. LSB and LSP scientists and engineers focus on the development and application of resources to help clients meet their objectives as well as the development of our own proprietary products for subsequent partnering with industry leaders.

A combined staff of 140 professionals operates from three locations in the United States, with a network of collaborators and affiliates throughout the US and Europe. Company headquarters, R&D laboratories and its Genomics division are located in Vacaville, California about 60 miles northeast of San Francisco. Process development and biomanufacturing take place in Owensboro, Kentucky, and LSB's Large Scale Proteomics Corporation subsidiary is located in Germantown, Maryland.

In August, 2000, LSB completed an initial public offering (IPO) of 5 million shares of common stock and now trades on the NASDAQ under the symbol LSBC.

### **Leadership - Large Scale Biology Corporation**

*Robert L. Erwin*, Chairman of the Board and Chief Executive Officer, founded LSB™ and has served as a director and officer since 1987. Mr. Erwin is the former chairman of the State of California Breast Cancer Research Council and currently serves on the University of California President's Engineering Advisory Council. He is Chairman of the Supervisory Board of Icon Genetics AG. As a co-founder of Sungene Technologies Corp., Mr. Erwin served as Vice President of Research and Product Development from 1981 through 1986. He has served on the Biotechnology Industry Advisory Board for Iowa State University. Mr. Erwin received his M.S. degree in Genetics from Louisiana State University and is an inventor on several LSB patents.

*David R. McGee, Ph.D.*, a co-founder of LSB and Senior Vice President and Chief Operating Officer, has been an officer since 1987. Prior to joining LSB, Dr. McGee was Vice President of Operations at Sungene Technologies Corporation from 1983 to 1987. Dr. McGee received his Ph.D. in Genetics from Louisiana State University and served as a faculty instructor of zoology and genetics at Louisiana State University.

*Laurence K. Grill, Ph.D.*, a co-founder of LSB and Senior Vice President, Research and Development, has served as an officer since 1987. Dr. Grill was the Manager of Plant Molecular Biology for Sandoz Crop Protection Corp. from 1984 to 1987 and Senior Research

Scientist in the Department of Molecular Biology at Zoecon Research Institute from 1980 to 1984. He received his Ph.D. from the University of California at Riverside with an emphasis on the molecular basis for viral gene expression in plants.

*R. Barry Holtz, Ph. D.*, Senior Vice President, Biopharmaceutical Manufacturing, has served the company as an officer since 1989 upon the acquisition of Holtz Bio-Engineering, which was founded in 1980. Dr. Holtz was a co-founder and Director of Research for MFI, Inc., the largest manufacturer of microencapsulated nutrients for agriculture and Director of Fundamental Research at Foremost-McKesson, Inc. Dr. Holtz received his Ph.D. in Biochemistry from Pennsylvania State University and served as Assistant Professor in the Department of Food Science and Nutrition at Ohio State University.

*Daniel Tusé, Ph.D.*, has been an officer of LSB since he joined the Company in 1995 as Vice President, Pharmaceutical Development. Dr. Tusé manages the company's pharmaceutical design and development programs, including LSB's novel vaccines and immunotherapeutics initiatives. Prior to joining LSB, Dr. Tusé was Assistant Director of SRI International's (Menlo Park, Calif.) Life Sciences Division. In his 17 years at SRI, Dr. Tusé developed extensive R&D experience in pharmaceuticals and specialty chemicals, serving an international list of clients. Dr. Tusé received his Ph.D. in Microbiology (1980, *cum laude*) with a minor in Toxicology from the University of California, Davis.

*John S. Rakitan*, a co-founder of LSB, Senior Vice President & General Counsel and Secretary, has served as an officer since 1988. Prior to joining LSB, Mr. Rakitan was an attorney in private practice. Mr. Rakitan received his J.D. degree from the University of Notre Dame.

*Michael D. Centron*, Treasurer, has served as Controller since 1988 and was elected as Treasurer in 1991. Mr. Centron was Audit Supervisor for Varian Associates from June 1985 through July 1988, and he also worked for Arthur Young and Co. (currently Ernst & Young). Mr. Centron is a certified public accountant and received his M.B.A. degree from the University of California at Berkeley.

*Guy della-Cioppa, Ph.D.*, is an officer of the company and currently serves as Vice President, Genomics. Prior to joining the company in 1989, Dr. della-Cioppa worked for Monsanto Company in St. Louis, MO from 1984-1989 and was an NIH Postdoctoral Fellow at the Worcester Foundation for Experimental Biology in Shrewsbury, MA from 1983-1984. He received his Ph.D. in Biology from the University of California, Los Angeles.

*William M. Pfann* joined Large Scale Biology in August 2000 as Senior Vice President Finance and Chief Financial Officer. Mr. Pfann was formerly with PricewaterhouseCoopers LLP from 1969 to July 2000, most recently as the Risk Management Partner for the Western Region. He served in a number of management roles at PwC, including leader of the firm's Silicon Valley audit practice, National Director of the networking and communications sector and Managing Partner of the Northern California emerging business group, as well as Partner-in-Charge of the Oakland and Walnut Creek, California offices. Mr. Pfann received a B.S. degree from the University of California, Berkeley, in Business Administration and an MBA in Accounting from Golden Gate University.

**[back to index](#)**

## Large Scale Proteomics Corporation

### Leadership - Large Scale Proteomics Corporation

*N. Leigh Anderson, Ph.D.*, Chairman, President and CEO of Large Scale Proteomics Corporation (LSP™). Dr. Anderson obtained his B.A. in Physics with honors from Yale and a Ph.D. in Molecular Biology from Cambridge University (England) working with M. F. Perutz as a Churchill Fellow at the MRC Laboratory of Molecular Biology. Subsequently he co-founded the Molecular Anatomy Program at the Argonne National Laboratory (Chicago) where his work in the development of 2-dimensional electrophoresis (2-DE) and molecular database technology earned him, among other distinctions, the American Association for Clinical Chemistry's Young Investigator Award for 1982 and the 1983 Pittsburgh Analytical Chemistry Award. In 1985 Dr. Anderson co-founded LSP (originally Large Scale Biology Corp., Germantown, MD) in order to pursue commercial development and large-scale applications of 2-D electrophoretic protein mapping technology.

*Norman G. Anderson, Ph.D.*, Chief Scientist at LSP. Dr. Anderson has a distinguished record as an inventor. His career includes senior positions at Oak Ridge and Argonne National Laboratories (ORNL and ANL), more than 300 scientific publications, and the receipt of more than 20 prestigious awards in recognition of his work in science and technology. For his invention of the zonal ultracentrifuge, he received the John Scott Medal Award, and for the centrifugal fast analyzer, the Preis Biochemische Analytik für Klinische Chemie from Die Deutsche Gesellschaft für Klinische Chemie for the most outstanding analytical development in clinical chemistry worldwide during a 2-year period. In 1984 ANL awarded him its career patent leader award for the largest number of patents issued to an employee. At that time the commercial value of his inventions in terms of U.S. sales and royalties from foreign licensing were \$250 million and \$1 million, respectively. Dr. Anderson received his degrees at Duke University: a B.A. in Zoology, M.A. in Physiology, and Ph.D. in Cell Physiology. He holds 28 patents.

*Constance Seniff*, Vice President, Operations. Ms. Seniff has managed LSP's operations since 1993. Her background includes thirteen years in international business prior to joining LSP, five abroad in the employ of foreign firms. Ms. Seniff is responsible for helping formulate and implement business development and database commercialization strategies for LSP in coordination with the management of LSP's parent company, Large Scale Biology Corporation. Ms. Seniff has a B.Sc. degree in Business (with honors) from Florida State University.

*Robert J. Walden*, Vice President, Finance at LSP. Mr. Walden joined LSP in 1997 and has served as a director since 1999. He previously served as Vice President of Finance and Administration at Osiris Therapeutics, Inc., and as Chief Financial Officer at the American Type Culture Collection (ATCC). Mr. Walden received his degree in Finance from the University of Maryland.

*Jean-Paul Hofmann, Ph.D.*, Vice President, Software Development at LSP. Dr. Hofmann is a plant geneticist by training, having earned a B.S. in Biology, M.S. in Biochemistry and Genetics, and Ph.D. in Plant Genetics from the University of Orsay, Paris. He has extensive

experience in using 2-DE in agronomic research and in designing analytical software for 1- and 2-D applications. He has held senior scientific positions in industry and research institutes, in the U.S., France and the Ivory Coast.

*John Taylor, Ph.D.*, Vice President, Software Development and Bioinformatics. Dr. Taylor is the principal developer of Kepler™, LSP's analytical software for automated 2-DE pattern analysis. Prior to joining LSB, Dr. Taylor served as computer scientist in the Molecular Anatomy Program at Argonne, and on the research staffs of the University of Chicago and the Armed Forces Institute of Pathology in Washington, D.C. Dr. Taylor received a B.S. in Physics from the University of South Carolina, and a Ph.D. in Nuclear Physics from Duke University.

*Sandra Steiner, Ph.D.*, currently serves as Vice President Proteomics Applications. Prior to joining the Company, Dr. Steiner founded and directed the Molecular Toxicology Group at Novartis in Basel, Switzerland and was a member in several multi-disciplinary drug development project teams. Dr. Steiner received her Ph.D. in Toxicology/Pharmacology from the University of Basel, Switzerland.

**[back to index](#)**

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